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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number	09/805,626
Filing Date	Mar 13, 2001
First Named Inventor	Zhang
Group Art Unit	2171
Examiner Name	THAI, HANH
Total Number of Pages in This Submission	
Attorney Docket Number	MS1-725US

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ENCLOSURES *(check all that apply)*

- [✔] Fee Transmittal Form
  - [ ] Fee Attached
- [ ] Amendment / Reply
  - [ ] After Final
  - [ ] Affidavits/declaration(s)
- [ ] Extension of Time Request
- [ ] Express Abandonment Request
- [ ] Information Disclosure Statement
- [ ] Certified Copy of Priority Document(s)
- [ ] Response to Missing Parts/ Incomplete Application
  - [ ] Response to Missing Parts under 37 CFR 1.52 or 1.53
- [ ] Assignment Papers *(for an Application)*
- [ ] Drawing(s) Sheets
- [ ] Licensing-related Papers
- [ ] Petition
- [ ] Petition to Convert to a Provisional Application
- [ ] Power of Attorney, Revocation Change of Correspondence Address
- [ ] Terminal Disclaimer
- [ ] Request for Refund
- [ ] CD, Number of CD(s) _____
- [ ] After Allowance Communication to Group
- [✔] Appeal Communication to Board of Appeals and Interferences
- [ ] Appeal Communication to Group *(Appeal Notice, Brief, Reply Brief)*
- [ ] Proprietary Information
- [ ] Status Letter
- [✔] Other Enclosure(s) *(please identify below)*:

  Appeal in Triplicate w/Appendix of Claims on Appeal; and Return Receipt Postcard;

Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm *or* Individual name	David S. Lee
Signature	David S. Lee
Date	February 17, 2004

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FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 330.00

Complete if Known	
Application Number	09/805,626
Filing Date	Mar 13, 2001
First Named Inventor	Zhang
Examiner Name	THAI, HANH B
Art Unit	2171
Attorney Docket No.	MS1-725US

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METHOD OF PAYMENT *(check all that apply)*

☐ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

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FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1001	770	2001	385	Utility filing fee	
1002	340	2002	170	Design filing fee	
1003	530	2003	265	Plant filing fee	
1004	770	2004	385	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	

SUBTOTAL (1) ($) 0

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

	Extra Claims		Fee from below	Fee Paid
Total Claims		-20** =		X =
Independent Claims		- 3** =		X =
Multiple Dependent				=

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
1202	18	2202	9	Claims in excess of 20
1201	86	2201	43	Independent claims in excess of 3
1203	290	2203	145	Multiple dependent claim, if not paid
1204	86	2204	43	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) ($) 0

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for *ex parte* reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	420	2252	210	Extension for reply within second month	
1253	950	2253	475	Extension for reply within third month	
1254	1,480	2254	740	Extension for reply within fourth month	
1255	2,010	2255	1,005	Extension for reply within fifth month	
1401	330	2401	165	Notice of Appeal	
1402	330	2402	165	Filing a brief in support of an appeal	330.00
1403	290	2403	145	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,330	2453	665	Petition to revive - unintentional	
1501	1,330	2501	665	Utility issue fee (or reissue)	
1502	480	2502	240	Design issue fee	
1503	640	2503	320	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	770	2809	385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810	770	2810	385	For each additional invention to be examined (37 CFR 1.129(b))	
1801	770	2801	385	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify) _____

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) ($) 330.00

SUBMITTED BY

(Complete *(if applicable)*)

Name (Print/Type)	David S. Lee	*Registration No. (Attorney/Agent)*	38,222	*Telephone*	(206) 315-4001
Signature	David S. Lee			*Date*	Feb. 17, 2004

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This collection of information is required by 37 CFR 1.17 and 1.27. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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OIPE JC37
FEB 17 2004
PATENT & TRADEMARK OFFICE

EV622185325

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application Serial No.: 09/805,626
Filing Date: March 13, 2001
Inventors: Zhang et al.
Appellant: Microsoft Corporation
Group Art Unit: 2171
Examiner: THAI, H.B.
Confirmation No.: 3014
Attorney's Docket No.: MS1-725US
Title: **A Media Content Search Engine Incorporating Text Content and User Log Mining**

APPEAL BRIEF

RECEIVED
FEB 23 2004
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To: Mail Stop Appeal Brief - Patent
Commissioner for Patents
P.O. Box 1450
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From: David S. Lee
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Sir:

In response to the Final Office Action of October 14, 2003 in connection with the above-identified application, and further to the Notice of Appeal filed on January 14, 2004, an Appeal is made. Favorable consideration is respectfully requested.

02/23/2004 MAHMED1 00000065 120769 09805626
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REAL PARTY IN INTEREST

The real party part in interest in the present matter is the Microsoft Corporation of Redmond, WA, USA.

RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences known to the Appellant or the Appellant's undersigned representative that would directly affect, or be directly affected by, the outcome of the present Appeal.

STATUS OF CLAIMS

The application that is subject to the present Appeal was filed on March 13, 2001, and included Claims 1-54. This Appeal is made to the rejection of all of Claims 1-54.

STATUS OF AMENDMENTS

Subsequent to the Final Office Action of October 14, 2003, the Appellant filed a Request for Reconsideration in the U.S. Patent and Trademark Office on November 12, 2003.

An Advisory Action was issued on December 4, 2003, indicating that the Request for Reconsideration had been considered but was deemed to not place the application in condition for allowance. The Advisory Action indicates that, for the purposes of Appeal, Claims 1-54 are rejected.

SUMMARY OF THE INVENTION

The present invention is directed towards searching media content using related high-level text features and user log mining. The present summary references the example system of Fig. 2 and the example process of Fig. 3 of the subject application.

As set forth in the "Summary of the Invention" on page 2 of the application, text features corresponding to pieces of media content are extracted from media content sources. The media content pieces can be a variety of types of media content, such as images, audio, multimedia content, *etc.* One or more text features (*e.g.*, one or more words) for a piece of media content are extracted from text associated with the piece of media content. A text feature vector is generated from these extracted text features and made available for comparison to a query vector during subsequent searches. Additional low-level feature vectors may also be extracted from the piece of media content and used during the comparison process.

Fig. 2 of the application illustrates an exemplary media content retrieval system 120 in accordance with certain embodiments of the invention, and Fig. 3 shows a flowchart illustrating an exemplary process for collecting and indexing pieces of media content from web pages in accordance with certain embodiments of the invention. The process of Fig. 3 may be performed in software.

Referring to the system of Fig. 2, the image retrieval process is initiated by a user via a user query interface 180 of user interface 122. Alternatively, the image retrieval process may be initiated by another component or module. When a media content search request is made, retrieval component 124 receives the search request

and accesses component 126 to determine which pieces of media content to return in response to the search request.

Query vectors are generated by interface module 180 or a module of retrieval system 124 and stored in query record 182. A low-level query vector may be generated by extracting and concatenating the low-level features from the input image. A high-level query vector may generated by extracting keywords from the search criteria and building a query vector by assigning a value of one to the element corresponding to each extracted keyword and a value of zero for the other elements.

A matching module 184 compares the query vectors to the feature vectors in a document space model 186 and determines how closely the query vectors match the feature vectors in document space model 186. Matching module 184 performs its comparison of query vectors to feature vectors based on both the low-level and high-level query and feature vectors. Matching module 184 determines which images to return to user interface component 122 as matching or satisfying the search criteria in a variety of different manners. The user is given the opportunity, via user feedback interface 188, to indicate, for each returned image, whether the image is relevant or irrelevant. Once input, this relevance feedback is stored in a user log 190.

Query updating module 192 accesses the relevance feedback from user log 190 and updates the query vectors in query vector 182 to reflect the relevance feedback provided by the user. Once the new query vectors are generated, matching module 184 repeats its comparison process using the updated query

vectors, and returns a new set of closely matching media content pieces to user interface component 122. This feedback process can be repeated multiple times.

ISSUES

The issues presented for appeal include:

1) the rejection of Claim 40 under 35 U.S.C. §102(e) as being anticipated by Marchisio (U.S. Patent No. 6,510,406; hereafter "Marchisio");

2) the rejection of Claims 1-39 and 41-50 under 35 U.S.C. §103(a) as being unpatentable over Marchisio in view of Hoffert et al. (U.S. Patent 6,282,549; hereafter "Hoffert");

3) the rejection of Claims 51-53 under over Marchisio in view of Ma et al. (U.S. Patent 6,347,313; hereafter "Ma"); and

4) the rejection of Claim 54 under 35 U.S.C. §103(a) as being unpatentable over Marchisio in view of Ma in view of Hoffert.

GROUPING OF CLAIMS

The Appellant submits that the claims under appeal do not stand or fall together. The rejections presented in the Final Office Action are addressed below as they pertain to the following groups of claims.

a. Claim 40;

b. Claim 1, 5-9;

c. Claim 2;

d. Claims 3 and 4;

e. Claims 10-26;

f. Claims 27, 28, and 32-39;

g. Claim 29;

h. Claims 30 and 31;

i. Claim 41;

j. Claims 42-47;

k. Claims 48-50;

l. Claims 51-53; and

m. Claim 54.

ARGUMENT

1) The rejection of Claim 40 under 35 U.S.C. §102(e)

a. The Appellant respectfully submits that Marchisio does not anticipate **Claim 40**.

Marchisio relates to a latent semantic-based information retrieval system (Marchisio, col. 4, lines 66 and 67). As described in the Summary, Marchisio describes document processing steps to pre-process searchable documents to generate a representation of a search space, and further performs query processing steps to process a search query received from a user to generate a query vector for the query (Marchisio, col. 5, lines 8-14). The system includes an indexing module, storage module, search module, and query module (Marchisio, Fig. 2 and col. 8, lines 38-33).

However, Marchisio does not anticipate Claim 40 under the requirements set forth in MPEP §2131, which clearly states that the reference must teach every element of the claim and also be arranged as required by the rejected claim.

Tellingly, these essential requirements are found in the opening discussion of the standards for an anticipation rejection in MPEP §2131:

> "The identical invention must be shown in as complete detail as is contained in the...claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

However, the elements of Marchisio cited in the rejection as anticipating those of Claim 40 are not "shown in as complete detail as is contained" in Claim 40, as required by MPEP §2131. For instance, the rejection contemplates search module 24 (Marchisio, Fig. 2) as corresponding to the claimed crawler module. But Marchisio does not describe search module 24 as being "coupled to access a media content source and collect a plurality of media content pieces and associated text from the media content source," as recited in Claim 40.

Rather, Fig. 2 of Marchisio shows search module 24 being connected to storage module 22, which includes a relational database management system (RDBMS) for storing a term-document index (col. 9, lines 7-11). A term-document matrix is defined as an output of a feature extraction module including a number of inverted files (col. 9, lines 32-36). More specifically, the content of storage module 22 includes the content of documents 27 that has already been reduced by feature extraction module 21 and concept synchronizer 28 into a term-document matrix or query vector. Thus, not only does the coupling of search module 24 and storage module 22 not anticipate the claimed crawler

module, but the arrangement of the search module 24 and storage module 22 actually teach a processing flow that is opposite to that of Claim 40.

Thus, not only are the features of Marchisio not "shown in as complete detail as is contained" in Claim 40, but neither are the features of the reference "arranged as required" by Claim 40, as standardized by MPEP §2131. More particularly, as indicated above, Claim 40 recites a system comprising:

> a crawler module coupled to access a media content source and collect a plurality of media content pieces and associated text from the media content source;
>
> a feature extraction module coupled to extract one or more text features from one of the media content pieces; and
>
> a media content indexing module coupled to generate a text feature vector, based on the extracted one or more text features, corresponding to the one media content piece.

On the other hand, as set forth above, search module 24 is connected to storage module 22, which includes an RDBMS for storing a term-document index. Thus, search module 24 and search module 21 described by Marchisio are not arranged as the crawler module and feature extraction module as recited in Claim 40.

Further, the rejection in the Final Office Action attempts to compare the feature extraction module of Claim 40 with feature extraction modules 21 of Marchisio. However, in Fig. 2 of Marchisio, feature extraction modules 21 in indexing module 20 input original documents and a query to concept synchronizer 28 (col. 8, lines 64-66), which clearly does not anticipate extracting one or more text features from a media content piece as recited in connection with the feature extraction module of Claim 40. Thus, feature extraction

modules 21 of indexing module 20 do not anticipate the feature extraction module recited in Claim 40.

Further, Fig. 2 of Marchisio also shows a feature extraction module 21 corresponding to search module 24. This embodiment of feature extraction module 21 transmits queries from clients 25 utilizing CORBA (Common Object Request Broker Architecture), which helps transfer messages to and from objects between various platforms in a distributed environment. Such depiction of feature extraction module 21 in search module 24 also fails to anticipate the feature extraction module recited in Claim 40.

Lastly, the rejection attempts to compare the indexing module 20 described by Marchisio with the media content indexing module recited in Claim 40. Indexing module 20 in Fig. 2 of Marchisio reduces original documents and a query received from the aforementioned extraction modules 21 into symbolic form, *i.e.*, a term-document matrix or query vector. Such description does not teach a text feature vector being generated based on an extracted text feature corresponding to a collected media content piece, as recited in Claim 40.

Therefore, for at least the reasons set forth above, it is respectfully submitted that the rejection of Claim 40 under 35 U.S.C. §102(e) should be reversed.

2) The rejection of Claims 1-39 and 41-50 under 35 U.S.C. §103(a)

The Appellant respectfully submits that **Claims 1-39 and 41-50** are not rendered obvious by the combination of Marchisio and Hoffert.

MPEP §2143 states, in part:

> To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

It is respectfully submitted that the requirements for establishing a *prima facie* case of obviousness, set forth in MPEP §2143, have not all been met in the present rejection.

b. With regard to rejected **Claim 1**, the Appellant submits that the proposed combination is not sufficiently motivated by either of Marchisio or Hoffert, nor does the proposed combination of Marchisio and Hoffert teach or suggest all of the claim limitations.

On page 6 of the Final Office Action, it is acknowledged that Marchisio does not teach "the text feature vectors associated with the plurality of media content pieces." Accordingly, Marchisio fails to teach "identifying media content pieces to be rendered by comparing the query vector to text features associated with the plurality of media content pieces," as recited in Claim 1, and

consequently Marchisio provides no basis for the further recited "receiving user feedback regarding the relevancy of the identified media content pieces";

On the other hand, Hoffert does describe, "that relevant textual information may be directly surrounding the media reference on a web page, or it may be far from the media reference," (col. 4, lines 55-57). However, neither Marchisio nor Hoffert provides any description that suggests that such "relevant textual information" may be used in combination with a query vector, as described by Marchisio, to identify media content pieces to be rendered, as in Claim 1. Further, Hoffert does not compensate for consequences of the acknowledged deficiencies of Marchisio, which are noted above.

Claim 1 compares a query vector to the text feature vector associated with a plurality of media content pieces. *Arguendo*, even if the textual information described by Hoffert does suggest the claimed "text feature vectors associated with the plurality of media content pieces," Marchisio still would not utilize the textual information in such a manner to render the claim obvious. Instead, Marchisio parses an electronic text received in a user query (Marchisio, Fig. 1, step 16) by recognizing acronyms and extracting word roots to generate a user query vector (Marchisio, Fig. 1, step 17, emphasis added here).

Further still, Marchisio and Hoffert are silent with regard to user feedback on the relevancy of identified media content pieces, and the rejection does not advance any arguments to the effect that Hoffert is able to remedy such deficiency.

Specifically, Marchisio does not teach or suggest, "receiving user feedback regarding the relevancy of the identified media content pieces," as

recited in Claim 1, and therefore provides no basis for the further recitation of "modifying the query vector based on the user feedback."

Marchisio does, however, describe "semantic keyword feedback" obtained by isolating positive and negative coefficients in a truncated basis function expansion for a query approximation (col. 15, lines 57-59), and then describes (at col. 19, lines 4-7) an inverse inference engine providing concept feedback specific to each partition of a term-document matrix is defined as an output of a feature extraction module including a number of inverted files (col. 9, lines 32-36). But the feedback described by Marchisio is not utilized for "modifying the query vector based on the user feedback," or for modifying whatever is alleged to be substituted for text feature vectors associated with the plurality of media content pieces, as claimed.

Therefore, for at least the reasons set forth above, it is respectfully submitted that Claim 1 is distinguishable over the proposed combination of Marchisio and Hoffert.

Claim 5-9 depend from Claim 1, and are therefore distinguishable over Marchisio and Hoffert for at least the reasons set forth above regarding Claim 1. It is noted that the rejection in the Final Office Action does not assert any points of rejection that are specific to the features recited in Claim 5.

c. **Claim 2** is distinguishable over Marchisio and Hoffert for the reasons set forth above regarding Claim 1, from which Claim 2 depends. Further, the assertion in the Final Office Action that Marchisio discloses the features of Claim 2 is contradicted by the rejection of Claim 1. That is, in rejecting Claim 1,

it is conceded in the Final Office Action that "Marchisio...does not explicitly disclose 'the text feature vectors associated with the plurality of media content pieces'." Therefore, if the acknowledgement applies to the first recitation of such feature in Claim 1, then surely the acknowledgement also applies to the second recitation of such feature in dependent Claim 2, which recites, in part, "wherein the identifying comprises, comparing the query vector to text feature vectors associated with the plurality of media content pieces to generate first results."

In addition, the rejection in the Final Office Action asserts that Marchisio describes the "combining, for one of the plurality of media content pieces, the first and second results corresponding to the one media content piece" recited in Claim 2. However, while the portion of Marchisio cited in the rejection (col. 17, lines 47-53, Fig. 10) refers to an initial search and a secondary search, there is no teaching or suggestion that the results of such searches are combined. Rather, the search query for the secondary search request combines the selected related term or terms and the initial search term (Marchisio, col. 17, lines 37-39). There is no mention whatsoever that the user is presented with the results of both searches, much less that the results are combined in any manner.

The Appellant respectfully submits that Hoffert does not compensate for such deficiency, nor is any argument offered to that effect.

d. Claim 3 depends from Claim 2, and is therefore distinguishable over Marchisio and Hoffert for the reasons set forth above regarding both Claims 1 and 2. Further, Marchisio does not alter weights of the results of the first and

second searches, as asserted in the rejection in the Final Office Action. Rather, Marchisio describes electronic information files from the first search being presented to the user (Marchisio, col. 17, lines 54-61) and, in response to a user selection or indication, at least one electronic information file associated with the document weights generated in response to the secondary searches being retrieved (Marchisio, col. 17, lines 61-66). These descriptions do not suggest the "combining" of Claim 2, and therefore are unable to "alter" any weights used therein. Hoffert does not compensate for such deficiencies of Marchisio, with regard to Claim 3.

Claim 4 depends from Claim 3, and is therefore distinguishable over Marchisio and Hoffert for at least the reasons set forth above regarding Claims 1-3.

e. With regard to the method of **Claim 10**, on page 8 of the Final Office Action it is acknowledged that Marchisio does not teach "the text feature vectors associated with the plurality of media content pieces." However, such feature is not recited in Claim 10. Assuming *arguendo* that such acknowledgement actually refers to the recitation of "extracting, for a piece of media content, one or more text features from the associated text," which is found in Claim 10, it is submitted that Marchisio provides no basis for the further recitation of "making the one or more text features available for searching."

Hoffert does not compensate for the deficiency acknowledged with regard to Marchisio. Hoffert describes, "that relevant textual information may be directly surrounding the media reference on a web page, or it may be far from the

media reference," (col. 4, lines 55-57). However, Marchisio parses an electronic text received in a user query (Marchisio, Fig. 1, step 16, emphasis added here) by recognizing acronyms and extracting word roots to generate a user query vector (Marchisio, Fig. 1, step 17). Therefore, there is no place for the relevant textual information described by Hoffert in the user query processing described by Marchisio (Marchisio, Fig. 1).

Claims 11-26 depend from Claim 10, and are therefore distinguishable over Marchisio and Hoffert for at least the reasons set forth above regarding Claim 10.

f. With regard to the method of **Claim 27**, on page 12 of the Final Office Action it is acknowledged that Marchisio does not teach "the text feature vectors associated with the plurality of media content pieces." However, such feature is not recited in Claim 27. Assuming *arguendo* that such acknowledgement is made with regard to the recitation of "comparing the query vector to a feature vector corresponding to a piece of media content and having been generated based on text associated with the piece of media content," which is found in Claim 27, it is submitted that Marchisio provides no basis for the further recitation of "determining, based at least in part on a result of the comparing, whether to render the piece of media content to a user."

Hoffert does not compensate for the deficiency acknowledged with regard to Marchisio. Hoffert describes, "that relevant textual information may be directly surrounding the media reference on a web page, or it may be far from the media reference," (col. 4, lines 55-57). However, Marchisio parses an electronic

text received in a user query (Marchisio, Fig. 1, step 16, emphasis added here) by recognizing acronyms and extracting word roots to generate a user query vector (Marchisio, Fig. 1, step 17). Therefore, there is no place for the relevant textual information described by Hoffert in the user query processing described by Marchisio (Marchisio, Fig. 1).

Claims 28 and 32-39 depend from Claim 27, either directly or indirectly, and are therefore distinguishable over Marchisio and Hoffert for at least the reasons set forth above regarding Claim 27. It is noted that the rejection in the Final Office Action includes no specific points of rejection with regard to Claims 28 and 32.

g. Claim 29 depends from Claim 27, and is therefore distinguishable over Marchisio and Hoffert for at least the reasons set forth above regarding Claim 27. Further, the acknowledgement on page 12 of the Final Office Action that Marchisio does not explicitly disclose "the text feature vectors associated with the plurality of media content pieces," with regard to Claim 27, is also applicable to the second recitation of such feature in dependent Claim 29, which recites, in part, "comparing the other query vector to another feature vector corresponding to the piece of media content and having been generated based on the one or more low-level features of the piece of media content." Thus, Marchisio and Hoffert fail to render Claim 29 obvious.

h. Claim 30 depends from Claim 29, and is therefore distinguishable over Marchisio and Hoffert for at least the reasons set forth above regarding

Claims 27 and 29. Further, Marchisio does not alter weights of the results based on user feedback, as asserted in the rejection in the Final Office Action. Rather, Marchisio describes electronic information files from the first search being presented to the user (Marchisio, col. 17, lines 54-61) and, in response to a user selection or indication, at least one electronic information file associated with the document weights generated in response to the secondary searches being retrieved (Marchisio, col. 17, lines 61-66). These descriptions do not suggest the "combining" of Claim 29, and therefore are unable to "alter" any weights used therein.

Claim 31 depends from Claim 30, and is therefore distinguishable over Marchisio and Hoffert for at least the reasons set forth above regarding Claims 27, 29, and 30.

i. With regard to rejected **Claim 41**, the Appellant submits that the proposed combination is not sufficiently motivated by either of Marchisio or Hoffert, nor does the proposed combination of Marchisio and Hoffert teach or suggest all of the claim limitations.

In the Final Office Action, it is acknowledged that Marchisio does not teach "the text feature vectors associated with the plurality of media content pieces." Accordingly, Marchisio fails to teach "receive the query vector and compare the query vector to a plurality of feature vectors corresponding to a plurality of pieces of media content, wherein each of the plurality of feature vectors has been generated based on text associated with one of the plurality of pieces of media content," as recited in Claim 41. Consequently, Marchisio

provides no basis for "identify one or more of the plurality of pieces of media content to return for rendering to a user based on the comparison of the query vector to the plurality of feature vectors," which is recited further in Claim 41.

Claim 41 compares a query vector to the text feature vector associated with a plurality of media content pieces. *Arguendo*, even if the textual information described by Hoffert does suggest the claimed "text feature vectors associated with the plurality of media content pieces," Marchisio still would not utilize the textual information in such a manner to render the claim obvious. Instead, Marchisio parses an electronic text received in a user query (Marchisio, Fig. 1, step 16) by recognizing acronyms and extracting word roots to generate a user query vector (Marchisio, Fig. 1, step 17, emphasis added here).

j. With regard to the method of **Claim 42**, on page 15 of the Final Office Action it is acknowledged that Marchisio does not teach "the text feature vectors associated with the plurality of media content pieces." However, such feature is not recited in Claim 42. Assuming *arguendo* that such acknowledgement was made with regard to the recitation of "weighting for another piece of media content, based on the user feedback, both a result of comparing the high-level query vector to a high-level feature vector of the other piece of media content and a result of comparing the low-level query vector to a low-level feature vector of the other piece of media content," which is found in Claim 42, it is submitted that Marchisio provides no basis for the further recitation of "combining the weighted result to determine whether to identify the other piece of media content

for rendering." Hoffert does not compensate for the deficiency acknowledged with regard to Marchisio.

Further still, neither Marchisio nor Hoffert weights the results of other searches, as asserted in the rejection in the Final Office Action. Rather, Marchisio describes electronic information files from the first search being presented to the user (Marchisio, col. 17, lines 54-61) and, in response to a user selection or indication, at least one electronic information file associated with the document weights generated in response to the secondary searches being retrieved (Marchisio, col. 17, lines 61-66). These descriptions do not suggest the "combining" of Claim 42.

Claims 43-47 depends from Claim 42, and are therefore distinguishable over Marchisio and Hoffert for at least the reasons set forth above regarding Claim 42.

k. With regard to rejected **Claim 48**, the Appellant submits that the proposed combination is not sufficiently motivated by either of Marchisio or Hoffert, nor does the proposed combination of Marchisio and Hoffert teach or suggest all of the claim limitations.

As set forth above regarding Claims 1 and 41, on page 6 of the Final Office Action, it is acknowledged that Marchisio does not teach "the text feature vectors associated with the plurality of media content pieces." Accordingly, Marchisio fails to teach "modifying, based on the user feedback, a feature vector corresponding to the piece of media content," as recited in Claim 48. Consequently, Marchisio provides no basis for the further recited "making the

modified feature vector available for subsequent searching of the one or more pieces of media content".

Hoffert describes, "that relevant textual information may be directly surrounding the media reference on a web page, or it may be far from the media reference," (col. 4, lines 55-57). However, neither Marchisio nor Hoffert has any description to suggest that such "relevant textual information" may be used for subsequent searching of pieces of media content, as in Claim 48.

Further still, Marchisio and Hoffert are silent with regard to user feedback on the relevancy of identified media content pieces, and the rejection does not advance any arguments to the effect that Hoffert is able to remedy such deficiency. Specifically, Claim 48 recites "modifying, based on the user feedback, a feature vector corresponding to the piece of media content." Marchisio does not teach or suggest, "receiving user feedback regarding the relevancy of one or more pieces of rendered media content," as further recited in Claim 48.

Marchisio does describe "semantic keyword feedback" obtained by isolating positive and negative coefficients in a truncated basis function expansion for a query approximation (col. 15, lines 57-59), and then describes (at col. 19, lines 4-7) an inverse inference engine providing concept feedback specific to each partition of a term-document matrix is defined as an output of a feature extraction module including a number of inverted files (col. 9, lines 32-36). But the feedback described by Marchisio is not utilized for "modifying, based on the user feedback, a feature vector corresponding to the piece of media

content," or for modifying whatever is alleged to be substituted for text feature vectors associated with the plurality of media content pieces, as claimed.

Claims 49 and 50 depend from Claim 48, and are therefore distinguishable over Marchisio and Hoffert for the reasons set forth above with regard to Claim 48.

It is respectfully submitted that the rejection in the Final Office Action attempts to match terms from the rejected claims with those found in the proposed references in a piecemeal manner, but fails to provide any teaching that would support a combination that teaches the claimed invention. Thus, it is requested that the rejection of Claims 1-39 and 41-50 under 35 U.S.C. §103(a) be reversed.

3) The rejection of Claims 51-53 under 35 U.S.C. §103(a)

The Appellant respectfully submits that Claims 51-53 are not rendered obvious by the combination of Marchisio and Ma.

l. With regard to **Claim 51**, the Appellant submits that Marchisio parses an electronic text received in a user query (Marchisio, Fig. 1, step 16, emphasis added here) by recognizing acronyms and extracting word roots to generate a user query vector (Marchisio, Fig. 1, step 17). But, there is no teaching in Marchisio to even suggest that a feature vector corresponding to a piece of media content is used in the user query processing described by Marchisio. That much was repeatedly acknowledged in the Final Office Action, by the concession that "Marchisio...does not disclose the text feature vectors associated with the plurality of media content pieces," with regard to the rejection of Claims 1-39

and 41-50 under 35 U.S.C. §103(a). It is further submitted that Ma does not compensate for such deficiency, nor is an argument to that effect advanced in the Final Office Action.

It is asserted in the rejection in the Final Office Action that Marchisio, col. 17, lines 55-65 discloses the claimed "modifying the query vector based on the received user feedback." However, the cited portion of Marchisio actually describes electronic information files from the first search being presented to the user (Marchisio, col. 17, lines 54-61) and, in response to a user selection or indication, at least one electronic information file associated with document weights generated in response to the secondary searches are retrieved (Marchisio, col. 17, lines 61-66). The cited description does not teach or suggest a query vector being modified in response to user feedback.

It is further submitted that Ma does not remedy the deficiencies of Marchisio in view of Claim 51. In particular, neither Marchisio nor Ma provide any teaching as to how the offline user feedback described by Ma (col. 9, lines 21-41) would be used to modify the query vector or the feature vector, as recited in Claim 51. The mere inclusion of user feedback is insufficient to render the claim obvious.

Claim 52 depends from Claim 51, and is therefore distinguishable over Marchisio and Ma for at least the reasons set forth above regarding Claim 51. **Claim 53** depends from Claims 51 and 52, and is therefore distinguishable over Marchisio and Ma for at least the reasons set forth above regarding Claims 51 and 52.

For at least the reasons set forth above, it is respectfully submitted that the rejection of Claims 51-53 under 35 U.S.C. §103(a) should be reversed.

4) The rejection of Claim 54 under 35 U.S.C. §103(a)

The Appellant respectfully submits that Claim 54 is not rendered obvious by the combination of Marchisio, Ma, and Hoffert.

m. Claim 54 depends from Claim 51, and is therefore distinguishable over Marchisio and Ma for at least the reasons set forth above regarding Claims 51 and 52. Further, such deficiencies are not compensated for by Hoffert, nor are assertions to that effect made in the Final Office Action.

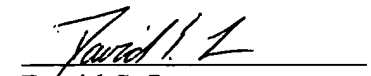
Accordingly, for at least the reasons set forth above, it is respectfully submitted that the rejection of Claim 54 under 35 U.S.C. §103(a) should be reversed.

CONCLUSION

For at least the reasons provided above, it is respectfully submitted that the rejections set forth in the Final Office Action of October 13, 2003, in connection with the subject application should be reversed.

Favorable consideration of this Brief is respectfully requested.

Respectfully submitted,



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APPENDIX OF CLAIMS ON APPEAL

1. One or more computer-readable media having stored thereon a plurality of instructions that, when executed by one or more processors of a computer, causes the one or more processors to perform the following acts:

receiving search criteria;

generating a query vector based on text features of the search criteria;

identifying media content pieces to be rendered by comparing the query vector to text feature vectors associated with a plurality of media content pieces;

receiving user feedback regarding the relevancy of the identified media content pieces;

modifying the query vector based on the user feedback;

modifying one or more of the text feature vectors associated with the plurality of media content pieces based on the user feedback; and

identifying new media content pieces to be rendered by comparing the modified query vector to the text feature vectors, including the one or more modified text feature vectors, associated with the plurality of media content pieces.

2. One or more computer readable media as recited in claim 1, further comprising:

generating another query vector based on one or more low-level features of the search criteria; and

wherein the identifying comprises,

comparing the query vector to text feature vectors associated with the plurality of media content pieces to generate first results,

comparing the other query vector to other low-level feature vectors associated with the plurality of media content pieces to generate second results, and

combining, for one of the plurality of media content pieces, the first and second results corresponding to the one media content piece.

3. One or more computer readable media as recited in claim 2, further comprising altering, based on the user feedback, a weighting of the results used in the combining.

4. One or more computer readable media as recited in claim 3, wherein the altering comprises:

determining, for the one of the plurality of media content pieces, whether the first result corresponding to the one media content piece is greater than the second result corresponding to the one media content piece; and

weighting the first result corresponding to the one media content piece more heavily if the first result corresponding to the one media content piece is less than the second result corresponding to the one media content piece, and otherwise weighting the second result corresponding to the one media content piece more heavily.

5. One or more computer readable media as recited in claim 1, wherein modifying one or more of the text feature vectors associated with the plurality of media content pieces based on the user feedback comprises altering a weighting of one or more elements in the feature vector based on the user feedback.

6. One or more computer readable media as recited in claim 1, wherein the search criteria comprises one or more words.

7. One or more computer readable media as recited in claim 1, wherein the piece of media content comprises an image.

8. One or more computer readable media as recited in claim 1, wherein the piece of media content comprises a portion of audio content.

9. One or more computer readable media as recited in claim 1, wherein the piece of media content comprises a portion of multimedia content.

10. A method comprising:

identifying a media content source;

collecting one or more pieces of media content and associated text from the media content source;

extracting, for a piece of media content, one or more text features from the associated text; and

making the one or more text features available for searching.

11. A method as recited in claim 10, further comprising:

generating one or more text feature vectors from the extracted one or more text features; and

wherein the making comprises making the one or more text feature vectors available for searching.

12. A method as recited in claim 10, further comprising:

extracting one or more low-level features from the media content piece; and

making the one or more low-level features available for searching.

13. A method as recited in claim 10, further comprising, for each collected piece of media content:

classifying the image as meaningful or not meaningful; and

wherein the extracting comprises extracting the one or more text features for the piece of media content only if the piece of media content is classified as meaningful.

14. A method as recited in claim 10, wherein the media content source comprises a web site including a plurality of web pages, each web page including a plurality of pieces of media content and text associated with one or more of the plurality of pieces of media content.

15. A method as recited in claim 10, wherein the associated text for a piece of media content comprises a filename and the one or more text features comprises one or more words in the filename.

16. A method as recited in claim 10, wherein the associated text for a piece of media content comprises a uniform resource locator (URL) and the one or more text features comprises one or more words in the URL.

17. A method as recited in claim 10, wherein the associated text for a piece of media content comprises alternate text that can be displayed in place of the media content, and the one or more text features comprises one or more words of the alternate text.

18. A method as recited in claim 10, wherein the associated text for a piece of media content comprises text surrounding the piece of media content on a web page, and the one or more text features comprises one or more words of the text surrounding the piece of media content.

19. A method as recited in claim 10, wherein the associated text for a piece of media content comprises a title of a web page that includes the piece of media content, and the one or more text features comprises one or more words in the title.

20. A method as recited in claim 10, wherein the associated text for a piece of media content comprises a link on a web page that includes the piece of media content, and the one or more text features comprises one or more words in the link.

21. A method as recited in claim 10, wherein the associated text for a piece of media content comprises anchor text corresponding to the piece of media content, and the one or more text features comprises one or more words in the anchor text.

22. A method as recited in claim 10, wherein the associated text for a piece of media content comprises an image annotation corresponding to the piece of media content, and the one or more text features comprises one or more words in the image annotation.

23. A method as recited in claim 10, wherein each of the one or more pieces of media content comprises an image.

24. A method as recited in claim 10, wherein each of the one or more pieces of media content comprises a piece of audio content.

25. A method as recited in claim 10, wherein each of the one or more pieces of media content comprises a piece of multimedia content.

26. One or more computer-readable memories containing a computer program that is executable by a processor to perform the method recited in claim 10.

27. A method comprising:

receiving search criteria;

generating a query vector based on the search criteria;

comparing the query vector to a feature vector corresponding to a piece of media content and having been generated based on text associated with the piece of media content; and

determining, based at least in part on a result of the comparing, whether to render the piece of media content to a user.

28. A method as recited in claim 27, further comprising:

rendering a plurality of pieces of media content to the user;

receiving feedback from the user regarding one or more of the plurality of pieces of media content;

modifying the query vector based on the feedback; and

repeating the comparing and determining based on the modified query vector.

29. A method as recited in claim 27, further comprising:

generating another query vector based on one or more low-level features of the search criteria;

comparing the other query vector to another feature vector corresponding to the piece of media content and having been generated based on the one or more low-level features of the piece of media content;

combining a result of the other query vector to the other feature vector with the result of comparing the query vector to the feature vector; and

wherein the determining comprises determining, based at least in part on the combined result, whether to render the piece of media content to the user.

30. A method as recited in claim 29, further comprising:

accessing user feedback regarding the relevancy of one or more pieces of media content rendered to the user; and

altering, based on the user feedback, a weighting of the results during the combining.

31. A method as recited in claim 30, wherein the altering comprises:

determining whether a first distance between the other query vector and the other feature vector is greater than a second distance between the query vector and the feature vector; and

weighting the result of the comparing the other query vector to the other feature vector more heavily if the first distance is less than the second distance, and otherwise weighting the result of the comparing the query vector to the feature vector more heavily.

32. A method as recited in claim 27, further comprising:

accessing user feedback regarding the relevancy of one or more pieces of media content rendered to the user; and

modifying the feature vector corresponding to the piece of media content based on the user feedback.

33. A method as recited in claim 32, further comprising:

generating a user space vector corresponding to each of the one or more pieces of media content for which user feedback is accessed; and

using the user space vector corresponding to a particular piece of media content to modify the feature vector corresponding to the particular piece of media content.

34. A method as recited in claim 27, further comprising:

accessing user feedback regarding the relevancy of one or more pieces of media content rendered to the user; and

altering a weighting of one or more elements in the feature vector based on the user feedback.

35. A method as recited in claim 27, wherein the search criteria comprises one or more words.

36. A method as recited in claim 27, wherein the piece of media content comprises an image.

37. A method as recited in claim 27, wherein the piece of media content comprises a piece of audio content.

38. A method as recited in claim 27, wherein the piece of media content comprises a piece of multimedia content.

39. One or more computer-readable memories containing a computer program that is executable by a processor to perform the method recited in claim 27.

40. A system comprising:

a crawler module coupled to access a media content source and collect a plurality of media content pieces and associated text from the media content source;

a feature extraction module coupled to extract one or more text features from one of the media content pieces; and

a media content indexing module coupled to generate a text feature vector, based on the extracted one or more text features, corresponding to the one media content piece.

41. A system comprising:

a query generator to generate a query vector based on received search criteria; and

a matching module coupled to,

receive the query vector and compare the query vector to a plurality of feature vectors corresponding to a plurality of pieces of media content, wherein each of the plurality of feature vectors has been generated based on text associated with one of the plurality of pieces of media content, and

identify one or more of the plurality of pieces of media content to return for rendering to a user based on the comparison of the query vector to the plurality of feature vectors.

42. A method comprising:

receiving search criteria;

identifying, based at least in part on the search criteria, a piece of media content to be rendered;

receiving user feedback regarding the relevancy of the rendered piece of media content;

weighting for another piece of media content, based on the user feedback, both a result of comparing the high-level query vector to a high-level feature vector of the other piece of media content and a result of comparing the low-level query vector to a low-level feature vector of the other piece of media content; and

combining the weighted result to determine whether to identify the other piece of media content for rendering.

43. A method as recited in claim 42, further comprising generating a new high-level query vector and a new low-level query vector based at least in part on the search criteria.

44. A method as recited in claim 42, further comprising:

generating a user space vector corresponding to the piece of media content; and

using the user space vector corresponding to the piece of media content to modify the high-level feature vector corresponding to the piece of media content.

45. A method as recited in claim 42, further comprising altering a weighting of one or more elements in the feature vector based on the user feedback.

46. A method as recited in claim 42, wherein the high-level feature vector of the other piece of media content is a text feature vector.

47. One or more computer-readable memories containing a computer program that is executable by a processor to perform the method recited in claim 42.

48. A method comprising:

receiving user feedback regarding the relevancy of one or more pieces of rendered media content; and

for each of the one or more pieces of media content,

modifying, based on the user feedback, a feature vector corresponding to the piece of media content, and

making the modified feature vector available for subsequent searching of the one or more pieces of media content.

49. A method as recited in claim 48, wherein the feature vector is a text feature vector.

50. One or more computer-readable memories containing a computer program that is executable by a processor to perform the method recited in claim 48.

51. One or more computer-readable media having stored thereon a plurality of instructions that, when executed by one or more processors of a computer, causes the one or more processors to perform acts including:

identifying a piece of media content to render to a user based at least in part on comparing a query vector corresponding to search criteria of the user and a feature vector corresponding to the piece of media content;

receiving user feedback regarding the relevancy of the piece of media content;

modifying the query vector based on the received user feedback; and

modifying the feature vector based on the received user feedback in an off-line log mining process.

52. One or more computer-readable media as recited in claim 51 wherein modifying the query vector comprises generating a vector U based on pieces of media content identified as relevant in the user feedback, and generating a new query vector D_{new} according to the following:

$$D_{new} = \eta U + (1 - \eta)D$$

where η represents a confidence in the vector U.

53. One or more computer-readable media as recited in claim 52, wherein modifying the query vector comprises generating a vector V based on pieces of media content identified as irrelevant in the user feedback, and generating a new query vector D_{final} according to the following:

$$D_{final} = D_{new} * (1 - V)$$

54. One or more computer-readable media as recited in claim 51, wherein the piece of media content comprises one of: audio content, visual content, and multimedia content.